

ELECTRONIC TUBE REFERENCE

6ES8

Voltage - Dual Triode (similar high frequency) electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
TRIODE-TRIODE

Variable-mu twin triode designed for VHF cascode RF amplification with gain control, particularly in television tuner front ends requiring controlled amplification.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9AJ	BASE PINS	9
NOMINAL HEATER	6.3 V / 365 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

9AJ - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – 2P	B	P – Plate (Anode)	CONNECTED
PIN2 – 2G1	B	G1 – Control Grid	CONNECTED
PIN3 – 2K	B	K – Cathode	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – H	–	H – Heater	CONNECTED
PIN6 – 1P	A	P – Plate (Anode)	CONNECTED
PIN7 – 1G1	A	G1 – Control Grid	CONNECTED
PIN8 – 1K	A	K – Cathode	CONNECTED
PIN9 – IS	A	IS – Internal Screen	CONNECTED

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	2500 Ω
TRANSCONDUCTANCE	0.0125 S
AMPLIFICATION FACTOR	34
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	1.8 W
<i>Published maximum ratings and characteristic values promoted where applicable; additional values retained in TUBE_SECTION_PARAMETER.</i>	

SECTION2 Triode	
PLATE RESISTANCE	2500 Ω
TRANSCONDUCTANCE	0.0125 S
AMPLIFICATION FACTOR	34
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	1.8 W
<i>Second physical triode restored.</i>	

Variable-mu twin triode used as a cascode amplifier in television tuners.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1950 Sylvania

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1950 SYLVANIA

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage..... 4.0 6.3 Volts	6.3 V	Heater Voltage..... 4.0 6.3 Volts
Heater Current..... 600 365 Ma	365 mA	Heater Current..... 600 365 Ma
Plate Voltage. coiiriiiiiiiienennns 90 Volts	90 V	Plate Voltage. coiiriiiiiiiienennns 90 Volts
Grid Voltage. ...t ittt it -1.2 Volts	-1.2 V	Grid Voltage. ...t ittt it -1.2 Volts
Plate Current. 15 Ma	15 mA	Plate Current. 15 Ma
Plate Current. i it i 15 Ma	15 mA	Plate Current. i it i 15 Ma
Transconductance. ccvvviven et 12,500 umhos	12.5 umhos	Transconductance. ccvvviven et 12,500 umhos

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Supply Voltage (Ib =0Ma)..... 550 Volts Max.	550 V	Plate Supply Voltage (Ib =0Ma)..... 550 Volts Max.
Plate Voltage. coovnniiiiiiiennunens 130 Volts Max.	130 V	Plate Voltage. coovnniiiiiiiennunens 130 Volts Max.
Plate Dissipation..... oo, 1.8 Watts Max.	1.8 W	Plate Dissipation..... oo, 1.8 Watts Max.
Cathode Current. t iiiiinnvnas 22 Ma Max.	22 mA	Cathode Current. t iiiiinnvnas 22 Ma Max.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Negative Grid Voltage..... ..coivan.. 50 Volts Max.	50 V	Negative Grid Voltage..... ..coivan.. 50 Volts Max.
Grid Circuit Resistance. e, 1.0 Megohm Max.	1 Megohm	Grid Circuit Resistance. e, 1.0 Megohm Max.


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1963 Amperex Condensed

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1963 AMPEREX CONDENSED

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published heater rating
Heater current	365 mA	Published heater rating
Amplification factor	34	CascodeRF
Plate resistance	2500 ohm	CascodeRF
Transconductance	12500 μ S	CascodeRF

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	90 V	CascodeRF
Control-grid bias	-1.4 V	CascodeRF
Plate current	15 mA	CascodeRF


SOURCE DATA APPENDIX

1971 RCA HB3 Binder 4 of 7

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1971 RCA HB3 BINDER 4 OF 7
Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	90 V	ClassA
Plate current	15 mA	ClassA
Maximum plate voltage	330 V	—
with plate current = 0 – published value 1	0 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
with plate current = 0 – published value 2	550 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
PLATE VOLTAGE (Each Unit)	130 V	EachUnit
Negative-bias value lEach Unit)	50 V	EachUnit
CATHODE CURRENT (Each Unit)	22 mA	EachUnit
PLATE DISSIPATION (Each Unit)	1.8 mA	EachUnit
and heater	50 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
and heaters	50 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
and heaters	130 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid-Circuit Resistance (Each Unit)	1 mA	EachUnit

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	2500 ohm	ClassA
Transconductance	12500 uS	ClassA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage (AC or DC)	6.3 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Current	365 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid to plate (Each unit) – published value 1	1.9	EachUnit
Grid to plate (Each unit) – published value 2	1.9	EachUnit
Plate to cathode (Each unit) – published value 1	0.18	EachUnit
Plate to cathode (Each unit) – published value 2	0.17	EachUnit
Heater to cathode (Each unit) – published value 1	3	EachUnit
Heater to cathode (Each unit) – published value 2	3	EachUnit
Plate Voltage – published value 1	90 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Voltage – published value 2	90 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Voltage – published value 3	90 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage – published value 1	-1.2 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage – published value 2	-5 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage – published value 3	-9 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Resistance (Approx)	2500 ohm	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Transconductance – published value 1	12500	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance – published value 2	625	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Transconductance – published value 3	125	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Current	15 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 1 -Plate of – published value 1	1	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 1 -Plate of – published value 2	6	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 3 –Cathode of – published value 1	3	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 3 –Cathode of – published value 2	8	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 4 -Heater – published value 1	4	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 4 -Heater – published value 2	9	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 5 -Heater	5	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Supply Voltage	180 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Current	15 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Transconductance	12500	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Noise Figure ⁹	6.5	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
transconductance (.mhos) = 125 – published value 1	125 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
transconductance (.mhos) = 125 – published value 2	-9 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
factor = 0.01 and transconductance	0.01	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
d Grountletl-cathotle Input unit–pins 6, ~, ono e	6	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
d Grounded-grid output unit– pl ns 1, 2, and – published value 1	1	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
d Grounded-grid output unit– pl ns 1, 2, and – published value 2	2	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1975 RCA RC30

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1975 RCA RC30

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	6.3 V	Published in approved ECC189 target datasheet entry; Section1
Plate Voltage 90 90	90 V	Published in approved ECC189 target datasheet entry; Section1
Grid Voltage –1.2 –5	-9 V	Published in approved ECC189 target datasheet entry; Section1
Plate Resistance (Approx.)	2500 Ω	Published in approved ECC189 target datasheet entry; Section1
Transconductance 1 2500 625	125 μS	Published in approved ECC189 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	15 mA	Published in approved ECC189 target datasheet entry; Section1
Plate Supply Voltage with plate current of	0 mA	Published in approved ECC189 target datasheet entry; Section1
Plate Supply Voltage with plate current of 0 mA	550 V	Published in approved ECC189 target datasheet entry; Section1
Plate Voltage (Each unit)	130 V	Published in approved ECC189 target datasheet entry; Section1
Grid Voltage, Negative-bias value (Each unit)	50 V	Published in approved ECC189 target datasheet entry; Section1
Cathode Current (Each unit)	22 mA	Published in approved ECC189 target datasheet entry; Section1
Plate Dissipation (Each unit)	1.8 W	Published in approved ECC189 target datasheet entry; Section1
RMS voltage between cathode and heater	50 V	Published in approved ECC189 target datasheet entry; Section1
RMS voltage between cathode and heater*	50 V	Published in approved ECC189 target datasheet entry; Section1
DC voltage between cathode and heater*	130 V	Published in approved ECC189 target datasheet entry; Section1
Supply Voltage	180 V	Published in approved ECC189 target datasheet entry; Section1
transconductance of	125 μS	Published in approved ECC189 target datasheet entry; Section1
transconductance of 125 /imhos	500 mV	Published in approved ECC189 target datasheet entry; Section1
Grid-Circuit Resistance (Each unit)	1 MΩ	Published in approved ECC189 target datasheet entry; Section1
Heater Voltage (ac/dc)	6.3 V	Published in approved ECC189 target datasheet entry; Section1
Heater Current	300 mA	Published in approved ECC189 target datasheet entry; Section1
Grid to Plate	1.5 pF	Published in approved ECC189 target datasheet entry; Section1
Grid to Cathode and Heater	1.6 pF	Published in approved ECC189 target datasheet entry; Section1
Plate to Cathode and Heater	0.2 pF	Published in approved ECC189 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate to Cathode (Each Unit) 0.18	0.17 pF	Published in approved ECC189 target datasheet entry; Section1
100000 ohms cathode resistor,	2700 Ω	Published in approved ECC189 target datasheet entry; Section1

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